

REMARKS/ARGUMENTS

Apparatus claims 1-8 were under consideration in the application (claims 9-10 having been withdrawn from consideration). Claims 1, 3, 7 and 8 are rejected under 35 USC 102(a) based on Orita et al. Claims 2, 4, 5 and 6 are rejected under 35 USC 103(a) based on Orita et al.

Claims 2 and 4 are cancelled, and claims 11-18 are added. Thus, claims 1-8 and 11-18 are presently under consideration.

Incorporation of Claim 2 Elements into Claim 1

Applicant has amended independent claim 1 to include the limitations of claim 2. An anticipation rejection is proper only when the cited reference discloses each and every claim element. The Examiner has conceded that claim 2 does not disclose all of the elements of claim 1. Therefore, the anticipation rejection should be withdrawn.

Claim 2 (whose limitations, as discussed above, are incorporated into claim 1) is rejected as being obvious in view of Orita. The Examiner contends that "it would have been obvious to one of ordinary skill in the art to form the p-type GaN layer 17B of Orita et al having the Mg concentration is greater than or equal to about $4 \times 10^9 \text{ cm}^{-3}$ in order to obtain a good ohmic contact with the p-type electrode." Applicant respectfully submits that the Examiner has failed to set forth a proper *prima facie* case of obviousness. That is, the Examiner must point to some motivation or suggestion for the modification, in the reference itself or in knowledge held by one of ordinary skill in the art. Rather, the Examiner has employed impermissible hindsight, merely modifying the reference to fit the claim -- without substantiation.

Furthermore, as Applicant discusses in the specification, a high Mg concentration of the p-type contact layer can lead to a high hydrogen concentration and, therefore, is not preferable. See, e.g., page 16, lines 3-9 of Applicant's specification. Thus, one of ordinary skill in the art would be dissuaded from increasing the Mg concentration disclosed by Orita.

New Claims 16-18

Furthermore, Applicant also presents herewith new claim 16. Claim 16 is similar to original claim 1, except that it recites the preferred p-type electrode combination of Au and Pd. As is discussed in the application, the particular combination of Au and Pd leads to superior results. (See, e.g., p. 22, lns. 5-7).

Applicant recognizes that Orita discloses that the p-side electrode may be a multilayer or alloy combination of at least two of Ni, Fe, Cu, Cr, Ta, V, Mn, Al, Ag Pd, Ir, Au and Pt. However, Applicant has recognized that the specific combination of Au and Pd has particularly good effects and, thus, are non-obvious over the generalized disclosure of Orita et al. As disclosed in Applicant's specification, the Au/Pd combination is particular better than the other combinations, as disclosed from line 11 of page 21 to line 4 of page 22 of Applicant's specification.

New claim 17, dependent on new claim 16, includes the feature of original claim 2. Furthermore, new claim 18, dependent on new claim 16, includes the feature of original claim 5 (with the additional explicit recitation that "the n-type layer contains hydrogen," as discussed below with regard to claim 11.

New Claims 11-15

Applicant also presents new claims 11-15. New claim 11 is the same as original claim 1, further including the features of original claim 5 (with an addition, discussed below). New claim 12 (dependent on new claim 11) includes the features of original claim 3; new claims 13 and 14 include the features of original claims 7 and 8, respectively; new claim 15 includes the features of original claim 2.

The Examiner alleges that claim 5 is obvious in view of Orita. The Examiner contends that it would be obvious to have the hydrogen concentration in Orita less than or equal to 1×10^{17} "in order to decrease the resistance of the n-type layer." The Examiner states "Note that the

hydrogen concentration is less than 1×10^{17} i.e., hydrogen concentration can be zero.” However, claim 11 now includes the explicit feature that “the n-type layer includes hydrogen.” The Examiner is not free to ignore this claim language in rejecting the claims.

Furthermore, it is not known that there is an influence of bad effects in low efficiency for hydrogen disposed within the n-type layer in GaN group. Insofar as the applicants are concerned, the desirability for having a low hydrogen concentration is to realize a long life LED device, not decreasing resistance. See, for example, the specification at p. 24, lns. 7-19). In addition, the lifetime property is improved upon suppressing the raising-up of operational voltage and the lowering of brightness after ageing, and after suppressing the diffusion of In in the case of satisfying the conditions of the device, as mentioned in the specification at page 20, line 15 to page 24, line 5.

CONCLUSION

Applicant has, by way of the amendments and remarks presented herein, made a sincere effort to overcome rejections and address all issues that were raised in the outstanding Office Action. Accordingly, reconsideration and allowance of the pending claims are respectfully requested. If it is determined that a telephone conversation would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the unlikely event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, Applicant(s) petition(s) for any required relief including extensions of time and authorizes the Assistant Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. 299002052000.

Dated: April 21, 2003

Respectfully submitted,

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